

What is claimed is:

1. A method for reproducing animation data using an enhanced navigation player, the method comprising:
 - 5 receiving first graphic information comprising control data and animation data associated with audio/video (A/V) data read from a first source;
 - extracting from the first graphic information, second and third graphic information;
 - 10 decoding the second and third graphic information into first and second image data, respectively; and
 - reproducing at least one of the first and second image data in the form of animated images, based on the control data.
- 15 2. The method of claim 1 further comprising extracting first control data from the first graphic information.
3. The method of claim 1 further comprising extracting second control data from the second graphic information.
- 20 4. The method of claim 1 further comprising extracting third control data from the third graphic information.
5. The method of claim 1, wherein the first graphic
25 information is a MNG (Multimedia Network Graphics) file.

6. The method of claim 1, wherein the second graphic information is a PNG (Portable Network Graphics) file.

5 7. The method of claim 1, wherein the third graphic information is a JNG (JPEG Network Graphics) file.

8. The method of claim 2, wherein the first control data comprises MNG (Multimedia Network Graphics) control information.

10

9. The method of claim 3, wherein the second control data comprises PNG (Portable Network Graphics) control information.

15

10. The method of claim 4, wherein the third control data comprises JNG (JPEG Network Graphics) control information.

20

11. The method of claim 1, further comprising:
extracting first control data from the first graphic information;
extracting second control data from the second graphic information; and
extracting third control data from the third graphic information,

25

wherein the control data comprises first, second and third

control information.

12. The method of claim 11, wherein:

the first control data comprises MNG (Multimedia Network
5 Graphics) control information;
the second control data comprises PNG (Portable Network
Graphics) control information; and
the third control data comprises JNG (JPEG Network
Graphics) control information.

10

13. The method of claim 11, wherein:

the first graphic information is a MNG (Multimedia Network
Graphics) file;
the second graphic information is a PNG (Portable Network
15 Graphics) file; and
the third graphic information is a JNG (JPEG Network
Graphics) file.

14. A method for reproducing animation data using an
20 enhanced navigation player, the method comprising:

receiving first graphic information comprising control data
and animation data associated with audio/video (A/V) data read
from a first source;
storing the first graphic information in a storage medium;
25 extracting from the first graphic information, second and

third graphic information;
decoding the second and third graphic information into
first and second image data, respectively;
extracting first, second and third control data from the
5 first, second and third graphic information, respectively; and
reproducing at least one of the first and second image
data in the form of animated images, based on the control data,
wherein the control data comprises first, second and third
control data, wherein the first control data comprises MNG
10 (Multimedia Network Graphics) control information, the second
control data comprises PNG (Portable Network Graphics) control
information, and the third control data comprises JNG (JPEG
Network Graphics) control information.

15 15. The method of claim 11, wherein:
 the first graphic information is a MNG (Multimedia Network
Graphics) file;
 the second graphic information is a PNG (Portable Network
Graphics) file; and
20 the third graphic information is a JNG (JPEG Network
Graphics) file.

16. The method of claim 1, wherein the first source is an
enhanced navigation medium.

17. The method of claim 1, wherein the first source is a content server.

18. The method of claim 14, wherein the storage medium is 5 a temporary storage medium.

19. The method of claim 1, wherein the first source is an interactive digital versatile disc (I-DVD).

10 20. The method of claim 1, wherein and the first graphic information comprises MNG (Multimedia Network Graphics), PNG (Portable Network Graphics) and JNG (JPEG Network Graphics) data chunks.

15 21. The method of claim 20, wherein the MNG data chunk comprises MNG header information and MNG end information, and control information for reproducing animated images.

22. The method of claim 20, wherein the PNG data chunk 20 comprises PNG header information, PNG end information, object image data, and control information for controlling playback of the object image data.

23. The method of claim 20, wherein the JNG data chunk 25 comprises JNG header information, JNG end information, JPEG image

data, and control information for controlling playback of the JPEG image data.

24. The method of claim 23, wherein the JPEG image data
5 comprises multidimensional density attributes for defining aspect/ratio conversions for image data displayed on a display device, based on the display device dimensions.

25. The method of claim 24, wherein the multidimensional
10 density attributes comprise a horizontal pixel density X.

26. The method of claim 24, wherein the multidimensional density attributes comprise a vertical pixel density Y.

15 27. An enhanced navigation player for reproducing animation data, the player comprising:

a first decoder for receiving first graphic information comprising control data and animation data associated with audio/video (A/V) data read from a first source;

20 a second decoder for extracting second graphic information in form of first decoded image data from the first graphic information;

a parser for extracting third graphic information in form of second image data from the first graphic information;

25 a third decoder for decoding the third graphic information

into second decoded image data; and
an image manager for receiving the first and second
decoded image data and reproducing animated images, based on the
control data.

5

28. The player of claim 27, wherein the first decoder,
the second decoder and the parser, respectively extract first,
second and third control information from respectively the
first, second and third graphic information.

10

29. The player of claim 27 wherein the first control
data comprises MNG (Multimedia Network Graphics) control
information, the second control data comprises PNG (Portable
Network Graphics) control information, and the third control data
15 comprises JNG (JPEG Network Graphics) control information.

30. The player of claim 27, wherein:
the first graphic information is a MNG (Multimedia Network
Graphics) file;
20 the second graphic information is a PNG (Portable Network
Graphics) file; and
the third graphic information is a JNG (JPEG Network
Graphics) file.

25 31. The player of claim 27, wherein the first source is

an enhanced navigation medium.

32. The player of claim 27, wherein the first source is a content server.

5

34. The player of claim 27, further comprising a storage medium for temporarily storing first graphic information received by the first decoder.

10 35. The player of claim 27, wherein the first source is an interactive digital versatile disc (I-DVD).

36. The player of claim 27, wherein and the first graphic information comprises MNG (Multimedia Network Graphics), PNG 15 (Portable Network Graphics) and JNG (JPEG Network Graphics) data chunks.

37. The player of claim 36, wherein the MNG data chunk comprises MNG header information and MNG end information, and 20 control information for reproducing animated images.

38. The player of claim 36, wherein the PNG data chunk comprises PNG header information, PNG end information, object image data, and control information for controlling playback of 25 the object image data.

39. The player of claim 36, wherein the JNG data chunk comprises JNG header information, JNG end information, JPEG image data, and control information for controlling playback of the JPEG
5 image data.

40. The method of claim 39, wherein the JPEG image data comprises multidimensional density attributes for defining aspect/ratio conversions for image data displayed on a display
10 device, based on the display device dimensions.

41. An enhanced navigation player for reproducing animation data, the player comprising:

a MNG decoder for receiving MNG graphic information
15 comprising control data and animation data associated with audio/video (A/V) data read from at least one of an enhanced navigation medium and a content server;

a PNG decoder for extracting PNG graphic information in form of first decoded image data from the first graphic
20 information;

a JNG parser for extracting JNG graphic information in form of JPEG image data from the MNG graphic information;

a JPEG decoder for decoding the JNG graphic information into second decoded image data; and

25 a MNG layout manager for receiving the first and second

decoded image data and reproducing animated images, based on the control data.

42. The player of claim 41, wherein the MNG decoder, the
5 PNG decoder and the JNG parser, respectively extract MNG, PNG
and JNG control information from respectively the MNG, PNG and
JNG graphic information.

43. An enhanced navigation medium comprising:
10 audio/visual (A/V) data;
navigation data for controlling reproduction of the A/V
data by an enhanced navigation player; and
structural configuration for packaging the A/V and control
data, wherein the structural configuration comprises a data
15 frame comprising an MNG (Multimedia Network Graphics) file having
animation information.

44. The enhanced navigation medium of claim 43, wherein
the MNG file comprises:
20 MNG chunk data; and
at least one of PNG (Portable Network Graphics) chunk data
and JNG (JPEG Network Graphics) chunk data.

45. The enhanced navigation medium of claim 44, wherein
25 the MNG chunk data comprises:

a MNG header frame identifier;
a MNG end frame identifier; and
MNG control information.

5 46. An enhanced navigation data structure for packaging
animation data for reproduction by an enhanced navigation
player, the data structure comprising an MNG file comprising:

a audio/visual (A/V) data;
navigation data for controlling reproduction of the A/V
10 data by an enhanced navigation player.

47. The enhanced navigation data structure of 46,
wherein the A/V data and the navigation data are packaged into
MNG (Multimedia Network Graphics) chunk data; and at least one
15 of PNG (Portable Network Graphics) chunk data and JNG (JPEG
Network Graphics) chunk data.

48. The enhanced navigation data structure of claim 47,
wherein the MNG chunk data comprises:

20 a MNG header frame identifier;
a MNG end frame identifier; and
MNG control information.

49. The enhanced navigation data structure of claim 47,
25 wherein the PNG chunk data comprises:

a PNG header frame identifier;
a PNG end frame identifier; and
PNG control information.

5 50. The enhanced navigation data structure of claim 47,
wherein the JNG chunk data comprises:

a JNG header frame identifier;
a JNG end frame identifier; and
JNG control information.

10